

AMENDMENTS TO THE CLAIMS

Claims 1-57 are pending in this application, of which claims 27-37 are withdrawn from consideration.

Claims 1, 17-21, 38 and 45-49 are being canceled, without prejudice or disclaimer. Claims 2-5, 11, 15, 16, 22-26, 39-42, 50-53 and 55-57 are being amended.

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Canceled)
2. (Currently amended) The method of Claim 4 22, wherein the number of neural stem cells and/or neural stem cell progeny is increased by enhancing proliferation.
3. (Currently amended) The method of Claim 4 22, wherein the number of neural stem cells and/or neural stem cell progeny is increased by enhancing survival.
4. (Currently amended) The method of Claim 4 22, wherein the number of neural stem cells and/or neural stem cell progeny is increased by increasing secondary neural stem cells obtained from a primary neural stem cell.
5. (Currently amended) The method of Claim 4 22, wherein the neural stem cells are located in a subject.
6. (Original) The method of Claim 5, wherein PACAP is added parenterally.
7. (Original) The method of Claim 5, wherein the subject is a mammal.
8. (Original) The method of Claim 7, wherein the subject is an adult.

9. (Original) The method of Claim 7, wherein the subject is a human.
10. (Original) The method of Claim 5, wherein the subject is suffering from a neurodegenerative disease or brain injury.
11. (Currently amended) The method of Claim 9 10, wherein the neurodegenerative disease is Alzheimer's Disease, Parkinson's Disease, or Huntington's Disease.
12. (Original) The method of Claim 5, wherein the subject is suffering from a stroke.
13. (Original) The method of Claim 5, wherein the increase in neural stem cell number occurs in the subventricular zone of the subject.
14. (Original) The method of Claim 5, wherein the neural stem cells and/or progenitor cells which are derived from said neural stem cells are transplanted into said subject.
15. (Currently amended) The method of Claim ~~4~~ 22, wherein the PACAP is PACAP38.
16. (Currently amended) The method of Claim ~~4~~ 22, wherein the PACAP is PACAP27.
17. – 21. (Canceled)
22. (Currently amended) A method for increasing neural stem cell and/or neural stem cell progeny number comprising: adding pituitary adenylate cyclase-activating polypeptide (PACAP) to multipotent neural stem cells in an amount effective to increase neural stem cell and/or neural stem cell progeny number, said method further comprising adding The method of Claim 17, wherein the at least one growth factor is prolactin.

23. (Currently amended) The method of Claim 17 22, wherein the ~~at least one growth factor prolactin~~ is added concurrently with PACAP.
24. (Currently amended) The method of Claim 17 22, wherein the ~~at least one growth factor prolactin~~ is added sequentially with PACAP.
25. (Currently amended) The method of Claim 24 wherein the ~~at least one growth factor prolactin~~ is added prior to the addition of PACAP.
26. (Currently amended) The method of Claim 24 wherein the ~~at least one growth factor prolactin~~ is added after the addition of PACAP.
27. (Withdrawn) A method of increasing the number of neural stem cells and/or neurospheres in a culture comprising adding pituitary adenylate cyclase-activating polypeptide (PACAP) to a neural stem cell culture to increase the number of neural stem cells and/or neurospheres generated from the neural stem cell culture.
28. (Withdrawn) The method of Claim 27, wherein the neural stem cell culture is a primary culture.
29. (Withdrawn ) The method of Claim 27, wherein the neural stem cell culture is a clonal density culture.
30. (Withdrawn) The method of Claim 27, further comprising adding a growth factor to the culture.
31. (Withdrawn) The method of Claim 27, wherein the PACAP is PACAP38.
32. (Withdrawn) The method of Claim 27, wherein the PACAP is PACAP27.

33. (Withdrawn) The method of Claim 30, wherein the growth factor is fibroblast growth factor-2 (FGF-2).

34. (Withdrawn) The method of Claim 33, further comprising adding heparan sulfate.

35. (Withdrawn) The method of Claim 30, wherein the growth factor is epidermal growth factor.

36. (Withdrawn) The method of Claim 35, wherein the EGF is EGF51N or EGF51Q.

37. (Withdrawn) The method of Claim 30, wherein the growth factor is prolactin.

38. (Canceled)

39. (Currently amended) The method of Claim 38 50, wherein differentiation of neural stem cells into neurons is enhanced.

40. (Currently amended) The method of Claim 38 50, wherein the PACAP is PACAP38.

41. (Currently amended) The method of Claim 38 50, wherein the PACAP is PACAP27.

42. (Currently amended) The method of Claim 38 50, wherein the subject is a mammal.

43. (Original) The method of Claim 42, wherein the subject is an adult.

44. (Original) The method of Claim 42, wherein the subject is a human.

45. – 49. (Canceled)

50. (Currently amended) A method of enhancing differentiation of neural stem cells in a subject comprising administering pituitary adenylate cyclase-activating polypeptide (PACAP) to the subject in an amount sufficient to enhance differentiation of neural stem cells, said method further comprising administering The method of Claim 45, wherein the at least one growth factor is prolactin.

51. (Currently amended) The method Claim 45 50, wherein the at least one growth factor prolactin is administered to the subject prior to the administration of PACAP.

52. (Currently amended) The method Claim 45 50, wherein the at least one growth factor prolactin is administered to the subject after the administration of PACAP.

53. (Currently amended) The method of Claim 38 50, wherein the subject is suffering from a neurodegenerative disease or brain injury.

54. (Original) The method of Claim 53, wherein the neurodegenerative disease is Alzheimer's Disease, Parkinson's Disease, or Huntington's Disease.

55. (Currently amended) The method of Claim 38 50, wherein the subject is suffering from a stroke.

56. (Currently amended) The method of Claim 38 50, wherein the differentiation of neural stem cells occurs in the subventricular zone.

57. (Currently amended) The method of Claim 38 50, wherein the neural stem cells and/or progenitor cells which are derived from said neural stem cells are transplanted into said subject.